

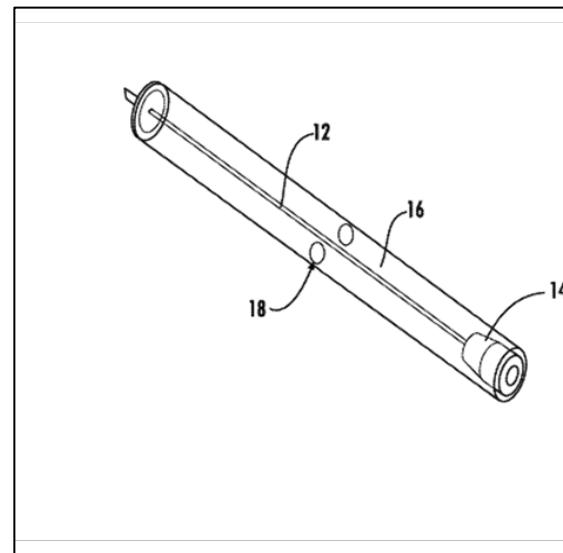
## **EXHIBIT F – 6**

## Exhibit 7: Department of Energy In Situ Sensors to Monitor Gas Pressure

The U.S. Department of Energy (DOE) constructs and uses classified microwire integrated devices, i.e., gas pressure sensors, to monitor neutron generating limited life components for nuclear weapons. The sensors include a sensing element having a ferromagnetic metal and a tension inducing mechanism coupled to the ferromagnetic metal. The tension inducing mechanism is operable to change the tensile stress upon the ferromagnetic metal based on a change in pressure in the sensing element. Changes in pressure are detected based on changes in the magnetic switching characteristics of the ferromagnetic metal when subjected to an alternating magnetic field caused by the change in the tensile stress. The sensing element are embedded in a closed system for detecting pressure changes without the need for any penetration of the system for power or “standoff” data acquisition by detecting changes in the magnetic switching characteristics of the ferromagnetic metal caused by tensile stress.

# Inference of Government Infringement for Microwire Strain Sensors

On March 15, 2013, DOE's Y-12 Plant filed for patent US 9146168 B1, Pressure sensor. The patent claim fails to identify the plaintiff's prior patents nor the Cooperative Research and Development Agreement in place from 2007 through 2009. This DOE Y-12 invention disclosure violates the non-disclosure agreement under the CRADA since it contains Demodulation trade secrets. The DOE Y-12 is a fraudulent "cover" because it violates a DOE-Y-12 confidentiality arrangement and does not assert the prior art and teachings of the plaintiff provided during the preceding CRADA. DOE and Y-12 were using plaintiff's patented ideas and constructing in-situ pressure sensors long before this patent filing.



1. A pressure sensor comprising:
  - a housing;
  - a ferromagnetic metal disposed in the housing;
  - a tension inducing mechanism coupled to the ferromagnetic metal, the tension inducing mechanism operable to change a tensile stress upon the ferromagnetic metal based on a change in pressure in the housing; and
  - a twisting mechanism operable to twist the ferromagnetic metal in relation to the housing.

DOE Y-12 Infringing Device

# Inference of Government Infringement for Microwire Strain Sensors

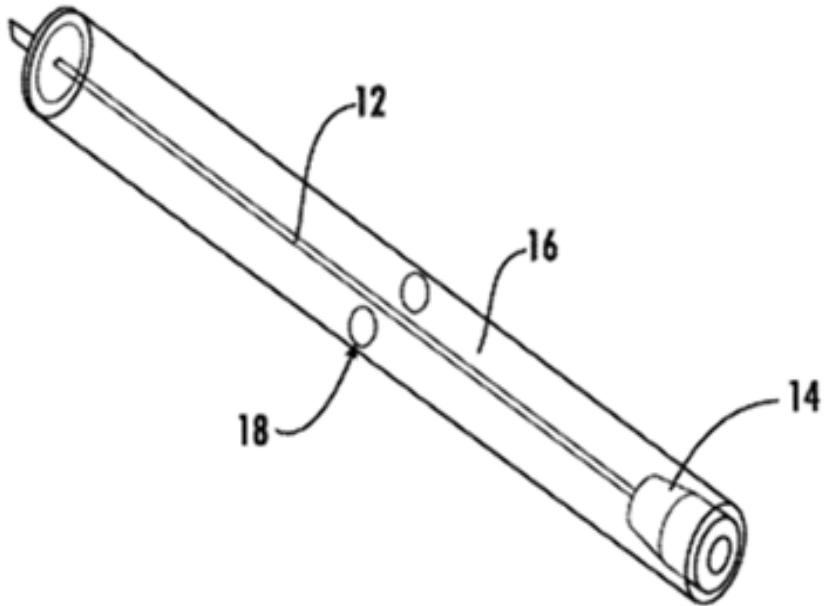
The Government released for public access the unclassified titles of five reports. The descriptive unclassified titles of the reports serve as irrefutable proof that DOE was constructing and using plaintiff's microwire strain sensors to monitor the state of health of nuclear weapons. Other public source information demonstrates that the specific topic of Department of Energy (DOE) use involves microwire gas pressure sensing devices for monitoring pressure loss or build-up in neutron generating pressure vessels, i.e., tritium reservoirs. In combination with LPDRD funding the evidence is indisputable that DOE was developing, constructing and using plaintiff's trade secrets to infringe on Demodulation's patents prior to the filing of the Government's fraudulent "cover" patent, i.e., US 9146168 B1, on March 15, 2013.

Bates No.	Report Title	Date Originated	Date Classified
US-024-00001-00014	"PRELIMINARY EVALUATIONS OF FOUR SENSOR TECHNOLOGIES OF INTEREST TO THE NWC (U)" REPORT: Y/DZ 2923	SEPTEMBER 2008	Unknown
US-024-00046-00062	"REMOTE SENSOR DESIGN (U)" REPORT: Y/DX-2843	SEPTEMBER 15, 2009	Originally unclassified (U) but changed to secret (S) by N. Howell on 9/2/09
US-024-00095, 00096 (Y/DX-2934)	"PASSIVELY INDUCTIVELY-COUPLED SENSOR FOR MONITORING A WEAPON'S THE STATE-OF-HEALTH (U)" REPORT: Y/DX 2934	JUNE 29, 2010	Originally U but changed to (S) by N. Howell no date provided
US-024-00107	"DEVELOPMENT AND TESTING OF A PASSIVE INDUCTIVELY COUPLED SENSOR FOR DETERMINING A WEAPON'S STATE-OF-HEALTH (U)" REPORT Y/DX 2894	AUGUST, 12, 2010	Originally U but changed to (S) by N. Howell on 6/23/11
US-024-00140, -00141, -00142	"AMORPHOUS WIRE CHARACTERIZATION MONITORING (U)" REPORT: Y/DX 2996	APRIL 25, 2012	Originally U but changed to (S) by N. Howell on 4/12/12

## Exhibit 7: Demodulation Strain Sensors

Demodulation microwire integrated devices, i.e., strain sensors, are used to monitor gas pressure. The sensors include a sensing element having a ferromagnetic metal and a tension inducing mechanism coupled to the ferromagnetic metal. The tension inducing mechanism is operable to change the tensile stress upon the ferromagnetic metal based on a change in pressure in the sensing element. Changes in pressure are detected based on changes in the magnetic switching characteristics of the ferromagnetic metal when subjected to an alternating magnetic field caused by the change in the tensile stress. The sensing elements are embedded in a closed system for detecting pressure changes without the need for any penetration of the system for power or “standoff” data acquisition by detecting changes in the magnetic switching characteristics of the ferromagnetic metal caused by tensile stress.

# Demodulation In-situ Gas Pressure Sensor



1. A pressure sensor comprising:
  - a housing;
  - a ferromagnetic metal disposed in the housing;
  - a tension inducing mechanism coupled to the ferromagnetic metal, the tension inducing mechanism operable to change a tensile stress upon the ferromagnetic metal based on a change in pressure in the housing; and
  - a twisting mechanism operable to twist the ferromagnetic metal in relation to the housing.